

# Delaware Wildlife Action Plan

## Statewide Issues and Actions Summary

Tuesday, July 07, 2015

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### IUCN Level 1: Administrative needs

**Issue 1**    **Administrative needs; Organizational Program planning needs; Need for agency organizational planning to meet goals and objectives: Need to meet the goals and objectives of the DEWAP.**    Rank: 1.0

#### Coordination and Administration

*Action 1*    *Coordination and Administration; Coordination and Administration:*    Rank: 1.7

Integrate SGCN and Key Wildlife Habitat conservation priorities into DFW responsibilities so as to merge game, sportfish, non-game and endangered species management. Fully fund and staff responsibilities for data collection and information management; natural resource management planning; monitoring and adaptive management; research; coordination of partnerships; and education, outreach and enforcement.

*Action 2*    *Coordination and Administration; Coordination and Administration:*    Rank: 1.7

Secure additional state funding for DFW such as adjusting the cost of a hunting/fishing license, establishing a "conservation stamp" for access to wildlife areas, more aggressively advertising the tax checkoff, and/or other means.

*Action 3*    *Coordination and Administration; Coordination and Administration:*    Rank: 1.8

Provide sufficient DFW "match" to receive the full allocation of available Federal funding from programs such as State Wildlife Grants, Pittman-Robertson, Dingell-Johnson, etc.

*Action 4*    *Coordination and Administration; Coordination and Administration:*    Rank: 2.0

Transfer non-wildlife related responsibilities out of DFW in order to better focus staff and fiscal resources on wildlife diversity conservation.

*Action 5*    *Coordination and Administration; Coordination and Administration:*    Rank: 2.2

Ensure balanced representation for all division responsibilities on the Fish and Wildlife Advisory Council and other Councils.

#### Planning

*Action 1*    *Planning:*    Rank: 1.0

Identify, evaluate, and implement actions in DFW that might not fit its mission and/or the DEWAP.

**Issue 2**     **Administrative needs; Coordination Administration needs: Funding issues - Education, Law enforcement, Wildlife diversity, etc.**     Rank: 1.2

**Coordination and Administration**

*Action 1*     *Coordination and Administration:*     Rank: 1.7  
Allow education to be SWG funding eligible.

*Action 2*     *Coordination and Administration:*     Rank: 1.8  
Allow law enforcement to be SWG funding eligible.

*Action 3*     *Coordination and Administration:*     Rank: 1.8  
Develop stable funding source for NG wildlife diversity.

**Issue 3**     **Administrative needs; Coordination Administration needs: Lack of integration/cooperation - Legislators, educators, and "outside" organizations, companies, NPOs, etc.**     Rank: 1.2

**Coordination and Administration**

*Action 1*     *Coordination and Administration; Coordination and Administration:*     Rank: 1.8  
Identify and implement ways DNREC can better work with and educate outside organizations, companies and NPOs to improve collaboration and support.

**Outreach**

*Action 1*     *Outreach; Partner stakeholder engagement:*     Rank: 1.8  
Work with and educate legislators and educators.

**Issue 4**     **Administrative needs; Organizational Program planning needs; Need for agency organizational planning to meet goals and objectives: Plants not represented in State Wildlife Action Plans.**     Rank: 1.2

**Planning**

*Action 1*     *Planning; State Wildlife Action planning:*     Rank: 1.7  
Include plants as SGCN and address in issues and actions in Wildlife Action Planning versus just being listed in key habitat text.

**Issue 5**     **Administrative needs; Coordination Administration needs; Need for coordination for effective program/project management: Private lands conservation - Coordination among private lands conservation programs.**     Rank: 1.2

**Outreach**

*Action 1*     *Outreach; Partner stakeholder engagement; Others:*     Rank: 1.5  
Encourage all private lands conservation providers to coordinate with DFW to ensure protection of key habitats and SGCN.

*Action 2*     *Outreach; Partner stakeholder engagement; Others:*     Rank: 1.7  
Encourage all private lands conservation providers to target education and outreach to landowners in or adjacent to core reserves and connecting corridors.

**Issue 6     Administrative needs: Private lands conservation - Incentives for landowners.**

Rank: 1.2

**Coordination and Administration**

- Action 1     Coordination and Administration; Incentives:* *Rank: 1.5*  
Develop additional incentives for exceptional management of key habitats or SGCN (similar to the Conservation Security Program).
- Action 2     Coordination and Administration; Incentives:* *Rank: 1.5*  
Develop additional incentives for landowners.
- Action 3     Coordination and Administration; Incentives:* *Rank: 1.5*  
Develop incentives for maintaining existing key habitats or SGCN on private lands (as opposed to current incentives for restoring key habitats or SGCN).
- Action 4     Coordination and Administration; Coordination and Administration; Agency administrative support:* *Rank: 1.5*  
Develop more turn-key services for implementing and managing habitat projects, including providing equipment and staff or contractual services.
- Action 5     Coordination and Administration; Incentives:* *Rank: 1.5*  
Support creation of federal and state income tax exemptions for conservation incentive payments.

**Issue 7     Administrative needs; Coordination Administration needs:**

Rank: 1.2

**Coordination and Administration**

- Action 1     Coordination and Administration:* *Rank: 1.3*  
Align long-term goals of DEWAP with short-term planning and actions.
- Action 2     Coordination and Administration; Coordination and Administration:* *Rank: 1.3*  
Consider changing administration of public lands to align with agency strengths (e.g., Parks, trail management; DFW wildlife management, etc.).

**Outreach**

- Action 1     Outreach; Partner stakeholder engagement:* *Rank: 1.3*  
Establish partnerships with government agencies, conservation organizations, businesses and private landowners to protect, manage and restore extant and historical SGCN occurrences and key wildlife habitats.

**Planning**

- Action 1     Planning:* *Rank: 1.3*  
Improve coordination within DNREC DFW to align long-term goals of DEWAP with internal and external planning.

- Issue 8**     **Administrative needs; Coordination Administration needs; Need for coordination for effective program/project management: Lack of coordination between organizations, agencies, large land owners, large business owners.**     Rank: 1.3
- Outreach**
- Action 1     Outreach; Partner stakeholder engagement:     Rank: 1.8*  
Better outreach, planning, coordination, and partnerships.
- Issue 9**     **Administrative needs; Coordination Administration needs; Need for agency administrative support for effective operations: Lack of coordination to avoid negative impacts to habitats and wildlife from ditching and draining for agriculture and forestry opera**     Rank: 1.3
- Coordination and Administration**
- Action 1     Coordination and Administration; Incentives:     Rank: 1.2*  
Work with the Division of Watershed Stewardship to provide incentives to tax ditch associations to implement BMPs that minimize impacts to key habitats.
- Issue 10**     **Administrative needs; Coordination Administration needs: Lack of education about the positive aspects/effects of hunting.**     Rank: 1.3
- Outreach**
- Action 1     Outreach; Recruitment and retention activities; For hunting and shooting:     Rank: 1.2*  
Implement programs that educate people about the positive aspects/effects of hunting.
- Planning**
- Action 1     Planning:     Rank: 1.2*  
Examine was to increase hunters and therefore revenue from fees.
- Issue 11**     **Administrative needs; Coordination Administration needs: Lack of funding for invasive species control.**     Rank: 1.3
- Coordination and Administration**
- Action 1     Coordination and Administration:     Rank: 1.7*  
Increase funding for Invasive Species Council.
- Issue 12**     **Administrative needs; Coordination Administration needs: Lack of funding.**     Rank: 1.3
- Coordination and Administration**
- Action 1     Coordination and Administration:     Rank: 1.7*  
Find new sources of funding across the board to support initiatives.

<b>Issue 13</b>	<b>Administrative needs; Coordination Administration needs: Lack of funds for "non-game" species.</b>	Rank: 1.3
	<b><u>Outreach</u></b>	
	<i>Action 1 Outreach; Partner stakeholder engagement:</i>	<i>Rank: 1.7</i>
	Design of funds to non-game species (e.g. binoculars, kayak sales, registering).	
<b>Issue 14</b>	<b>Administrative needs; Coordination Administration needs: Need for improved advocacy at State level for habitat conservation and need for improved level of action from small organizations.</b>	Rank: 1.3
	<b><u>Outreach</u></b>	
	<i>Action 1 Outreach; Partner stakeholder engagement:</i>	<i>Rank: 1.8</i>
	Coordinate, motivate, and support with and for NGOs for more advocacy.	
	<i>Action 2 Outreach; Partner stakeholder engagement:</i>	<i>Rank: 1.8</i>
	Develop/increase advocacy social media and social reach.	
<b>Issue 15</b>	<b>Administrative needs: Need for support of the RCN and regional coordination to address urgent emerging issues, regional threats, and regional responsibility species.</b>	Rank: 1.3
	<b><u>Outreach</u></b>	
	<i>Action 1 Outreach:</i>	<i>Rank: 1.3</i>
	Support for the RCN and regional coordination to address urgent emerging issues, regional threats, and regional responsibility species.	
<b>Issue 16</b>	<b>Administrative needs; Organizational Program planning needs: Short-term solutions don't line up with long-term goals.</b>	Rank: 1.3
	<b><u>Planning</u></b>	
	<i>Action 1 Planning; State Wildlife Action planning:</i>	<i>Rank: 1.8</i>
	Align long-term goals with current planning and actions.	
<b>Issue 17</b>	<b>Administrative needs; Coordination Administration needs; Need for agency administrative support for effective operations: Develop and implement management plans for tax ditches that incorporate conservation practices that benefit wildlife and their associ</b>	Rank: 1.5
	<b><u>Planning</u></b>	
	<i>Action 1 Planning:</i>	<i>Rank: 1.5</i>
	Work with Watershed Stewardship, DELDot, and landowners to develop and implement management plans, which incorporate DEWAP actions.	

**Issue 18**    **Administrative needs; Coordination Administration needs: Lack of coordination between DFW and local/county planning agencies relative to the DEWAP.**    Rank: 1.7

**Outreach**

*Action 1    Outreach; Partner stakeholder engagement:*    Rank: 1.8  
Improve coordination with State, County, and local planning to control sprawl.

*Action 2    Outreach; Partner stakeholder engagement:*    Rank: 1.8  
Inform County residents and decision-makers on the long-term impacts of decreased quality of life and importance of data reporting.

**Issue 19**    **Administrative needs; Coordination Administration needs: Noncompliance of data reporting from outside entities (such as entities under permit and/or survey from DFW).**    Rank: 1.8

**Data Collection and Analysis**

*Action 1    Data Collection and Analysis:*    Rank: 1.8  
Improve/enforce data reporting and examine new ways to make reporting more efficient.

**Issue 20**    **Administrative needs; Coordination Administration needs: Lack of unique county regulations to address population density, county regulations should align with statewide recommendations.**    Rank: 2.0

**Outreach**

*Action 1    Outreach; Partner stakeholder engagement:*    Rank: 2.3  
Inform/coordinate with State, county and local planning boards to create consistent regulations.

**Issue 21**    **Administrative needs: SGCN and habitats are not adequately protected through current land use policies.**    Rank: 2.0

**Law Enforcement**

*Action 1    Law Enforcement:*    Rank: 2.0  
Improve regulation regarding environmental reviews to ensure the protection of SGCN and their habitats.

**Planning**

*Action 1    Planning:*    Rank: 2.0  
Develop regulations/ordinances that protect DEWAP SGCN and their habitats.

## IUCN Level 1: Agriculture and aquaculture

**Issue 1**    **Agriculture and aquaculture: Agriculture causing habitat conversion and degradation.**    Rank: 1.2

**Coordination and Administration**

*Action 1    Coordination and Administration:*    Rank: 1.8

**Land and Water Rights Acquisition and Protection**

*Action 1 Land and Water Rights Acquisition and Protection: Rank: 1.8*

#### **Planning**

*Action 1 Planning: Rank: 1.8*

**Issue 2 Agriculture and aquaculture: Residential development causing wetland buffer conversion.** Rank: 1.3

#### **Technical Assistance**

*Action 1 Technical Assistance; Tech assistance; With private landowners: Rank: 1.7*

Implement cost-share programs, tax reform, market mechanisms and other incentives to encourage SGCN and key habitat management and restoration on private lands.

**Issue 3 Agriculture and aquaculture; Livestock farming and ranching: Livestock grazing causing riparian habitat degradation.** Rank: 2.3

#### **Direct Management of Natural Resources**

*Action 1 Direct Management of Natural Resources; Grazing farm management: Rank: 2.5*

Institute habitat-conserving livestock grazing practices where grazing occurs.

## **IUCN Level 1: Biological resource use**

**Issue 1 Biological resource use; Logging and wood harvesting: Lack of Sustainable Forestry certification requirement.** Rank: 1.3

#### **Outreach**

*Action 1 Outreach; Partner stakeholder engagement: Rank: 2.2*

Encourage certification. DE Wild Lands and Forestland already has this, but it is expensive.

THIS NEEDS TO BE REVIEWED BY DFS!

**Issue 2 Biological resource use; Logging and wood harvesting: Impacts from forestry practices on wildlife diversity.** Rank: 1.7

#### **Planning**

*Action 1 Planning: Rank: 1.7*

Develop an MOU between DFW and Forestry for management of wildlife diversity in State Forests.

**Issue 3 Biological resource use; Hunting and collecting terrestrial animals; Persecution/control: Misuse of rodenticides - Poisons** Rank: 2.3

#### **Coordination and Administration**

*Action 1 Coordination and Administration: Rank: 2.3*

Work with pest control companies and Tri-state Bird Rescue to educate companies about this issue and alternatives.

#### **Education**

*Action 1 Education; Student training:* *Rank: 2.7*

Educate the public about the proper use of rodenticides, how to avoid unintended "catches", or better alternatives.

**Issue 4 Biological resource use; Hunting and collecting terrestrial animals; Persecution/control: Misuse of rodenticides - Sticky traps, etc. (associated by-catch)** Rank: 2.3

**Coordination and Administration**

*Action 1 Coordination and Administration:* *Rank: 2.3*

Work with pest control companies and Tri-state Bird Rescue to educate companies about this issue and alternatives.

**Education**

*Action 1 Education; Student training:* *Rank: 2.7*

Educate the public about the proper use of rodenticides, how to avoid unintended "catches", or better alternatives.

**Issue 5 Biological resource use; Hunting and collecting terrestrial animals; Intentional use: Inappropriate hunting and fishing.** Rank: 2.3

**Coordination and Administration**

*Action 1 Coordination and Administration; Coordination and Administration; Agency administrative support:* *Rank: 1.3*

Integrate SGCN conservation into hunting and trapping regulations.

**Education**

*Action 1 Education; Student training; Wildlife education:* *Rank: 1.8*

Incorporate information about SGCN conservation into the Hunting and Trapping Guide.

**Law Enforcement**

*Action 1 Law Enforcement; Law Enforcement; Law Enforcement:* *Rank: 1.7*

Maintain compliance with federal regulations.

## IUCN Level 1: Climate change and severe weather

**Issue 1 Climate change and severe weather; Sea level rise:** Rank: 1.0

**Coordination and Administration**

*Action 1 Coordination and Administration; Incentives:* *Rank: 2.2*

Use tax incentives and land conservation tools such as donations of conservation easements to protect habitats.

**Planning**

*Action 1 Planning:* *Rank: 2.0*

Adapt coastal impoundments and ponds.

	<p><i>Action 2 Planning:</i> <span style="float: right;"><i>Rank: 2.0</i></span></p> <p>Address the concern that if you let coastal habitats retreat on conservation lands, the surrounding communities could be affected or left isolated and even less protected.</p>	
<b>Issue 2</b>	<p><b>Climate change and severe weather; Habitat shifting or alteration: Habitat loss due to climate change.</b></p> <p><u><b>Planning</b></u></p> <p><i>Action 1 Planning:</i> <span style="float: right;"><i>Rank: 1.8</i></span></p> <p>Plan for climate change scenarios.</p>	Rank: 1.2
<b>Issue 3</b>	<p><b>Climate change and severe weather; Sea level rise: Salinity changes (already happening) due to climate change.</b></p> <p><u><b>Planning</b></u></p> <p><i>Action 1 Planning:</i> <span style="float: right;"><i>Rank: 1.8</i></span></p> <p>Plan for climate change scenarios.</p>	Rank: 1.2
<b>Issue 4</b>	<p><b>Climate change and severe weather; Habitat shifting or alteration: Coastal/tidal wetland loss (fringe species) due to climate change.</b></p> <p><u><b>Planning</b></u></p> <p><i>Action 1 Planning:</i> <span style="float: right;"><i>Rank: 1.7</i></span></p> <p>Plan for climate change scenarios.</p>	Rank: 1.3
<b>Issue 5</b>	<p><b>Climate change and severe weather; Temperature extremes: Thermo habitat changes (marine and terrestrial species northern migration) due to climate change.</b></p> <p><u><b>Planning</b></u></p> <p><i>Action 1 Planning:</i> <span style="float: right;"><i>Rank: 1.8</i></span></p> <p>Plan for climate change scenarios.</p>	Rank: 1.3
<b>Issue 6</b>	<p><b>Climate change and severe weather; Sea level rise: Effects of sea level rise due to climate change on dams.</b></p> <p><u><b>Planning</b></u></p> <p><i>Action 1 Planning:</i> <span style="float: right;"><i>Rank: 1.8</i></span></p> <p>Plan for climate change scenarios.</p>	Rank: 1.7
<b>Issue 7</b>	<p><b>Climate change and severe weather; Habitat shifting or alteration: Inland migration of wetland, difficulty in deciding how to allocate funds.</b></p> <p><u><b>Coordination and Administration</b></u></p> <p><i>Action 1 Coordination and Administration:</i> <span style="float: right;"><i>Rank: 1.8</i></span></p> <p>Target decision makers to inform them of cost/benefits of strategic migration for sea level rise.</p>	Rank: 1.7

**Data Collection and Analysis**

- Action 1 Data Collection and Analysis: Rank: 2.0*  
Increase climate change-focused research and monitoring on DNERR land, USFWS, state wildlife areas, state parks, TNC, etc.
- Action 2 Data Collection and Analysis: Rank: 2.0*  
Prepare to manage different fish and wildlife species and habitats.

**Education**

- Action 1 Education: Rank: 2.0*  
Educate staff and the public about climate change in Delaware.

**Planning**

- Action 1 Planning: Rank: 2.0*  
Coordinate with local governments, communities, etc. for climate change adaptation projects and planning.
- Action 2 Planning: Rank: 2.0*  
Design and implement restoration activities to slow loss of coastal habitats, including the use of BMPs and habitat restoration.
- Action 3 Planning: Rank: 2.0*  
Develop a climate change adaptation plan for DNERR.
- Action 4 Planning: Rank: 2.0*  
Evaluate need for revisions to stormwater regulations.
- Action 5 Planning: Rank: 2.0*  
Evaluate need for revisions to technical standards and specifications for stormwater management.
- Action 6 Planning: Rank: 2.0*  
Evaluate strategies for increasing native pollinator habitat on public and private lands in relation to climate change.
- Action 7 Planning: Rank: 2.0*  
Incorporate climate change into land stewardship decisions at the Delaware National Estuarine Research Reserve and all conservation lands.
- Action 8 Planning; Left in overall CC category, not limiting to SLR, as increased storm events, etc. also make this an important action.: Rank: 2.0*  
Plan for increasing demands for shoreline management and beach preservation; Discuss additional support for living shorelines to support shoreline management and protection.
- Action 9 Planning: Rank: 2.0*  
Prepare to restore ecological integrity of unique ephemeral wetlands.

	<i>Action 10 Planning:</i>	<i>Rank: 2.0</i>
	Prepare to restore riparian buffers.	
	<i>Action 11 Planning:</i>	<i>Rank: 2.0</i>
	Scenario planning for anticipated expanded mosquito production season and increased nuisance wildlife complaints.	
<b>Issue 9</b>	<b>Climate change and severe weather: Climate change and severe weather events will exacerbate existing issues to SGCN and key habitats.</b>	<b>Rank: 1.8</b>
	<b><u>Data Collection and Analysis</u></b>	
	<i>Action 1 Data Collection and Analysis:</i>	<i>Rank: 1.8</i>
	Research and plan for climate change scenarios.	
<b>Issue 10</b>	<b>Climate change and severe weather; Droughts: Ground water extraction (irrigation, hydrology, etc.) effects exacerbated by climate change.</b>	<b>Rank: 2.2</b>
	<b><u>Planning</u></b>	
	<i>Action 1 Planning:</i>	<i>Rank: 2.5</i>
	Plan for climate change scenarios.	
<b>Issue 11</b>	<b>Climate change and severe weather; Habitat shifting or alteration: Lack of strategic planning to ensure funds target projects that protect the right, most appropriate areas.</b>	<b>Rank: 2.2</b>
	<b><u>Planning</u></b>	
	<i>Action 1 Planning; Species and habitat management planning:</i>	<i>Rank: 1.7</i>
	Protect areas further west for strategic planning for retreat. Strategic retreat versus hardening.	
<b>Issue 12</b>	<b>Climate change and severe weather; Habitat shifting or alteration: Need to focus on inland protection/funding (e.g. Prime Hook), not just on Coast.</b>	<b>Rank: 2.2</b>
	<b><u>Land and Water Rights Acquisition and Protection</u></b>	
	<i>Action 1 Land and Water Rights Acquisition and Protection; Land acquisition:</i>	<i>Rank: 2.3</i>
	Acquire lands for climate change migration for resiliency for west systems.	
	<i>Action 2 Land and Water Rights Acquisition and Protection; Land acquisition:</i>	<i>Rank: 2.3</i>
	Create new habitat inland - target funds for acquisition.	
<b>Issue 13</b>	<b>Climate change and severe weather: Seasonal/interannual changes (disrupted migration patterns, changes in food and habitat availability, etc.) due to climate change.</b>	<b>Rank: 2.2</b>
	<b><u>Planning</u></b>	
	<i>Action 1 Planning:</i>	<i>Rank: 1.8</i>
	Plan for climate change scenarios.	

<b>Issue 14</b>	<b>Climate change and severe weather; Habitat shifting or alteration: Vernal pool elimination and changes due to climate changes.</b>	Rank: 2.2
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**Planning**

<i>Action 1</i>	<i>Planning:</i>	<i>Rank: 1.8</i>
	Plan for climate change scenarios.	

## IUCN Level 1: Education Outreach needs

<b>Issue 1</b>	<b>Education Outreach needs; Outreach needs: Outreach/Dissemination.</b>	Rank: 1.2
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**Education**

<i>Action 1</i>	<i>Education; Educator/instructor training:</i>	<i>Rank: 1.2</i>
	Disseminate DEWAP to refuges/centers and educate staff about how to share information about the DEWAP.	

<i>Action 2</i>	<i>Education:</i>	<i>Rank: 2.5</i>
	Develop smart phone apps for state/public lands for nature education.	

**Outreach**

<i>Action 1</i>	<i>Outreach; Partner stakeholder engagement:</i>	<i>Rank: 1.2</i>
	Encourage cooperation and opportunity for various stakeholders to come together (i.e., Universities, NPOs, etc.).	

<b>Issue 2</b>	<b>Education Outreach needs: Training, education and outreach programs on key habitat ecology, SGCN biology, and conservation issues and actions.</b>	Rank: 1.2
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<i>Action 1</i>	<i>:</i>	<i>Rank: 1.0</i>
	Seek funding to reestablish DFW Adopt-a-Wetland program.	

**Education**

<i>Action 1</i>	<i>Education; Educator/instructor training:</i>	<i>Rank: 2.2</i>
	Provide training for state staff on key habitat ecology, SGCN biology, and conservation issues and actions.	

**Outreach**

<i>Action 1</i>	<i>Outreach; Partner stakeholder engagement; Government agency:</i>	<i>Rank: 1.2</i>
	Partner with the state Department of Education to develop a Delaware-specific biodiversity unit for the high school level that emphasizes key habitat ecology and SGCN biology, including training for teachers on integrating habitat enhancement/conservation activities and projects into the classroom curriculum.	

<i>Action 2</i>	<i>Outreach; Partner stakeholder engagement:</i>	<i>Rank: 1.5</i>
	Increase the number of schoolyard habitats.	

- Action 3 Outreach; Recruitment and retention activities: Rank: 1.5*  
Support expansion of and participation in DNS/NWF "Backyard Wildlife Habitat" program to promote greater citizen involvement in habitat enhancement and stewardship.
- Action 4 Outreach; Partner stakeholder engagement: Rank: 2.0*  
Expand use of Eco-Explorers, WADE (Wetland Activities for Delaware Educators), Project WILD, Project WET and other existing school programs, and develop opportunities to integrate key habitat and SGCN conservation content into the above and other existing programs/curricula.
- Action 5 Outreach; Recruitment and retention activities: Rank: 2.0*  
Implement "Leave No Trace" programs such as "The Frontcountry Program" and "PEAK" on public lands to promote greater responsibility for personal choices.
- Action 6 Outreach; Recruitment and retention activities: Rank: 2.2*  
Develop education and outreach for the general public, such as "profile brochures" for key habitats and SGCN, and "citizen's guides" for issues and actions.
- Action 7 Outreach; Recruitment and retention activities: Rank: 2.2*  
Develop wildlife viewing guides for selected species and/or sites and promote responsible ecotourism.
- Action 8 Outreach; Recruitment and retention activities: Rank: 2.2*  
Implement the Certified Citizen Naturalist program to provide for volunteer monitoring, wardening and stewardship of key habitats and SGCN. Recruit and train people to conduct surveys, protect resources, and manage habitats and species. Implement systems for volunteer reporting of results.

**Issue 3 Education Outreach needs; Education needs; Need for improved knowledge of fish and wildlife and their habitats: Rank: 1.7**

**Education**

- Action 1 Education: Rank: 2.0*  
Work with informal science educators/institutions to provide training and develop curricula, lessons, activities relevant to the DEWAP, SGCN, and key habitats.

**Issue 4 Education Outreach needs; Outreach needs; Need to maintain and/or increase constituent base: Decline in participation of hunting and trapping. Rank: 1.7**

**Outreach**

- Action 1 Outreach; Recruitment and retention activities; For hunting and shooting: Rank: 2.0*  
Recruit and expand hunting and fishing programs, farming, non-consumptive outdoor recreation and conservation. Many areas are now protected due to recreational use.

<b>Issue 5</b>	<b>Education Outreach needs: Residential development causing forest habitat conversion.</b>	Rank: 1.7
	<b><u>Education</u></b>	
	<i>Action 1 Education:</i>	Rank: 2.3
	Implement outreach and education programs - on-site programs and exhibits; print and video materials; web-based products - about SGCN biology, key habitat ecology, threats and conservation actions.	
<b>Issue 6</b>	<b>Education Outreach needs; Outreach needs; Need to develop and/or maintain a broad base of support for agency goals and objectives: Lack of information - Cooperate with health department.</b>	Rank: 1.8
	<b><u>Coordination and Administration</u></b>	
	<i>Action 1 Coordination and Administration; Coordination and Administration:</i>	Rank: 1.8
	Cooperate with health department.	
<b>Issue 7</b>	<b>Education Outreach needs; Coordination Administration needs: Lack of participation in conservation efforts.</b>	Rank: 2.0
	<b><u>Planning</u></b>	
	<i>Action 1 Planning:</i>	Rank: 2.3
	Hold summit (conservation coordination).	
	<i>Action 2 Planning:</i>	Rank: 2.3
	Increase participation in wildlife related activities/professions.	
	<i>Action 3 Planning:</i>	Rank: 2.7
	Work with universities for interns and programs; improve influx of new young professionals.	

## IUCN Level 1: Energy production and mining

<b>Issue 1</b>	<b>Energy production and mining; Renewable energy: Currently no required state approval or wildlife review.</b>	Rank: 2.0
	<b><u>Planning</u></b>	
	<i>Action 1 Planning:</i>	Rank: 1.5
	Develop regulations on placement and monitoring of wind turbines, wind farm facilities, etc. to mitigate and assess impacts on SGCN.	
<b>Issue 2</b>	<b>Energy production and mining: Emerging energy production issues.</b>	Rank: 3.0
	<b><u>Data Collection and Analysis</u></b>	
	<i>Action 1 Data Collection and Analysis:</i>	Rank: 2.5

## IUCN Level 1: Human intrusions and disturbance

- Issue 1**     **Human intrusions and disturbance; Recreational activities: Recreation use on foot and with boats, Personal Watercraft and Off-Road Vehicles, horses (including effects of horse excrement), and bikes.**     Rank: 1.8

### Law Enforcement

- Action 1*     *Law Enforcement; Law Enforcement; Law Enforcement:*     Rank: 1.5  
Strengthen enforcement of regulations for off-road vehicles on managed areas to protect key habitats and SGCN.

- Issue 2**     **Human intrusions and disturbance; Recreational activities: Recreation use on foot and with boats, Personal Watercraft and Off-Road Vehicles, horses (including effects of horse excrement), and bikes.**     Rank: 1.8

### Direct Management of Natural Resources

- Action 1*     *Direct Management of Natural Resources:*     Rank: 1.2  
Post and/or fence nesting sites, breeding concentrations or other critical areas on public property to protect SGCN, and enforce restrictions.

### Law Enforcement

- Action 1*     *Law Enforcement; Law Enforcement; Law Enforcement:*     Rank: 1.3  
In appropriate habitats, strengthen enforcement of surf fishing permit regulations on public property to protect SGCN.
- Action 2*     *Law Enforcement; Law Enforcement; Law Enforcement:*     Rank: 1.3  
Strengthen enforcement of regulations for off-road vehicles on managed areas to protect key habitats and SGCN.
- Action 3*     *Law Enforcement; Law Enforcement; Law Enforcement:*     Rank: 1.3  
Where appropriate, post "no wake" zones to protect key habitats and enforce them.

### Outreach

- Action 1*     *Outreach; Partner stakeholder engagement; Others:*     Rank: 1.3  
Work with private landowners to limit access to nesting sites, breeding concentrations or other critical areas to protect SGCN.

- Issue 3**     **Human intrusions and disturbance; Recreational activities: Recreational activities negatively impacting habitats.**     Rank: 1.8

### Education

- Action 1*     *Education; Student training:*     Rank: 1.8  
Implement "Leave No Trace" programs such as "The Frontcountry Initiative" and "PEAK."
- Action 2*     *Education; Student training:*     Rank: 2.0  
Expand Eco-Explorers, Project WILD, Project WET.

<b>Issue 4</b>	<b>Human intrusions and disturbance; Recreational activities: Recreation use on foot and with boats, Personal Watercraft and Off-Road Vehicles, horses (including effects of horse excrement), and bikes.</b>	<b>Rank: 2.0</b>
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#### Data Collection and Analysis

<i>Action 1</i>	<i>Data Collection and Analysis; Research survey or monitoring habitat; Monitoring:</i>	<i>Rank: 1.3</i>
	Assess the impacts of ORVs on sensitive key habitats, and use this assessment and long-term monitoring to adapt management as necessary.	

## IUCN Level 1: Invasive and other problematic species and genes

<b>Issue 1</b>	<b>Invasive and other problematic species and genes; Invasive non-native/alien species: Invasive plants causing habitat degradation.</b>	<b>Rank: 1.0</b>
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#### Planning

<i>Action 1</i>	<i>Planning; Species and habitat management planning; Species management planning:</i>	<i>Rank: 1.8</i>
	Develop an MOU between DFW and DPR (and any other important entities) for management of wildlife diversity in State Parks. Require consultation with DFW on all issues impacting wildlife diversity.	
<i>Action 2</i>	<i>Planning; Species and habitat management planning:</i>	<i>Rank: 2.0</i>
	Develop management practices for SGCN, key habitats and abatement of threats on public and private lands; measure the effectiveness of different management practices and adapt as necessary.	

## IUCN Level 1: Invasive and other problematic species genes and diseases

<b>Issue 1</b>	<b>Invasive and other problematic species genes and diseases; Invasive non native alien species diseases; Unspecified species: Invasive Plants.</b>	<b>Rank: 1.0</b>
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#### Coordination and Administration

<i>Action 1</i>	<i>Coordination and Administration; Coordination and Administration; Program/project administrative support:</i>	<i>Rank: 1.2</i>
	Support implementation of the Delaware Invasive Species Management Plan, as appropriate, to reduce the impacts of invasive species on key habitats and SGCN.	
<i>Action 2</i>	<i>Coordination and Administration; Coordination and Administration:</i>	<i>Rank: 1.8</i>
	Work with the Delaware Invasive Species Council to establish an interagency early detection and rapid response system to react to new invasions.	

#### Data Collection and Analysis

- Action 1 Data Collection and Analysis; Research survey or monitoring habitat; Monitoring:* *Rank: 1.3*
- Work with the Delaware Invasive Species Council and conservation land managers to conduct quantitative invasive plant surveys of key habitats.

#### **Direct Management of Natural Resources**

- Action 1 Direct Management of Natural Resources; Planting seeding:* *Rank: 1.5*
- Require use of native, Delaware indigenous species for new plantings or replantings on lands managed by the state, similar to the Native Plants Policy of the Division of Parks and Recreation.
- Action 2 Direct Management of Natural Resources; Invasive species control:* *Rank: 1.8*
- Work with the Delaware Invasive Species Council and conservation land managers to assess and monitor impacts of invasive plants using the Delaware Alien Plant Invasiveness Risk Assessment protocol, and prioritize control efforts based on degree of risk.

#### **Outreach**

- Action 1 Outreach; Partner stakeholder engagement:* *Rank: 1.2*
- Work with the Delaware Department of Transportation, Delaware Center for Horticulture and Cooperative Extension to enhance transportation construction and maintenance practices such as requiring the planting of native species, and limiting mowing during breeding, migration or other critical times for SGCN.
- Action 2 Outreach; Partner stakeholder engagement:* *Rank: 1.8*
- Develop education and outreach, partnerships, voluntary guidelines, incentives, and/or regulations, as necessary, for controlling invasive plants on private property and in private commerce, to minimize impacts to key habitats.

#### **Planning**

- Action 1 Planning:* *Rank: 1.8*
- Work with the Delaware Invasive Species Council and conservation land managers to develop and implement adaptive management plans for control of invasive species.

- Issue 2 Invasive and other problematic species genes and diseases; Problematic native species diseases; Named species: Nuisance wildlife (i.e., Canada Goose (resident), Cats, Turkey Vulture, Cormorant, and others).** **Rank: 1.0**

#### **Direct Management of Natural Resources**

- Action 1 Direct Management of Natural Resources; Invasive species control:* *Rank: 2.0*
- ABC plans, etc. to address outdoor cat problem.

*Action 2 Direct Management of Natural Resources; Invasive species control; Animal-biological: Rank: 2.2*

**Education**

*Action 1 Education; Student training: Rank: 2.0*

**Planning**

*Action 1 Planning: Rank: 2.0*

**Issue 3 Invasive and other problematic species genes and diseases; Invasive non native alien species diseases; Named species: Invasive species (i.e., Bradford Pear, Autumn Olive, Cedar Swamp, Wineberry, Ashborer, Walnut Twig Beetle (AA 1,000 Cankers), Phragmites, Rank: 1.2**

**Data Collection and Analysis**

*Action 1 Data Collection and Analysis; Research survey or monitoring habitat: Rank: 2.0*

Monitor the spread and effect of invasive species commonly used in landscaping into neighboring habitats.

**Education**

*Action 1 Education; Student training: Rank: 2.0*

Educate landscapers and homeowners and encourage restricting use of invasive species (mostly plants) and/or removing planted invasives.

**Law Enforcement**

*Action 1 Law Enforcement; Law Enforcement; Law Enforcement: Rank: 2.0*

Restrict sale/availability of invasive species (mostly plants).

**Outreach**

*Action 1 Outreach; Partner stakeholder engagement: Rank: 2.0*

Reach out to nurseries and plant suppliers to encourage restricting sale/availability of invasive species (mostly plants).

**Issue 4 Invasive and other problematic species genes and diseases; Problematic species diseases of unknown origin: "Super weeds" that have become tolerant/resistant to various herbicides/pesticides. Rank: 1.3**

**Direct Management of Natural Resources**

*Action 1 Direct Management of Natural Resources; Invasive species control: Rank: 2.5*

**Issue 5 Invasive and other problematic species genes and diseases; Diseases of unknown cause: New emerging diseases. Rank: 1.3**

**Direct Management of Natural Resources**

*Action 1 Direct Management of Natural Resources; Wildlife disease management: Rank: 1.7*

Prevent and preempt emerging diseases.

<b>Issue 6</b>	<b>Invasive and other problematic species genes and diseases; Invasive non native alien species diseases; Named species: Asian Tiger Mosquito control, particularly larval stage.</b>	Rank: 1.5
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**Direct Management of Natural Resources**

<i>Action 1</i>	<i>Direct Management of Natural Resources; Invasive species control:</i>	<i>Rank: 2.2</i>
	Control Asian Tiger Mosquitos.	

<b>Issue 7</b>	<b>Invasive and other problematic species genes and diseases; Invasive non native alien species diseases; Unspecified species: Invasive Plants.</b>	Rank: 1.5
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**Coordination and Administration**

<i>Action 1</i>	<i>Coordination and Administration; Coordination and Administration; Program/project administrative support:</i>	<i>Rank: 1.2</i>
	Support implementation of the Delaware Invasive Species Management Plan, as appropriate, to reduce the impacts of invasive species on key habitats and SGCN.	
<i>Action 2</i>	<i>Coordination and Administration; Coordination and Administration:</i>	<i>Rank: 1.8</i>
	Work with the Delaware Invasive Species Council to establish an interagency early detection and rapid response system to react to new invasions.	

**Data Collection and Analysis**

<i>Action 1</i>	<i>Data Collection and Analysis; Research survey or monitoring habitat; Monitoring:</i>	<i>Rank: 1.8</i>
	Work with the Delaware Invasive Species Council and conservation land managers to conduct quantitative invasive plant surveys of key habitats.	

**Direct Management of Natural Resources**

<i>Action 1</i>	<i>Direct Management of Natural Resources; Planting seeding:</i>	<i>Rank: 1.2</i>
	Require use of native, Delaware indigenous species for new plantings or replantings on lands managed by the state, similar to the Native Plants Policy of the Division of Parks and Recreation.	
<i>Action 2</i>	<i>Direct Management of Natural Resources; Invasive species control:</i>	<i>Rank: 1.8</i>
	Work with the Delaware Invasive Species Council and conservation land managers to assess and monitor impacts of invasive plants using the Delaware Alien Plant Invasiveness Risk Assessment protocol, and prioritize control efforts based on degree of risk.	

**Outreach**

<i>Action 1</i>	<i>Outreach; Partner stakeholder engagement:</i>	<i>Rank: 1.8</i>
	Develop education and outreach, partnerships, voluntary guidelines, incentives, and/or regulations, as necessary, for controlling invasive plants on private property and in private commerce, to minimize impacts to key habitats.	

*Action 2 Outreach; Partner stakeholder engagement: Rank: 1.8*

Partner with the Delaware Invasive Species Council and land management agencies to integrate key habitat and SGCN conservation into invasives control practices.

*Action 3 Outreach; Partner stakeholder engagement: Rank: 1.8*

Work with the Delaware Department of Transportation, Delaware Center for Horticulture and Cooperative Extension to enhance transportation construction and maintenance practices such as requiring the planting of native species, and limiting mowing during breeding, migration or other critical times for SGCN.

*Action 4 Outreach; Partner stakeholder engagement: Rank: 1.8*

Work with the Delaware Forest Service and the forestry industry to implement a Master Logger program to encourage landowners to work with loggers who harvest timber selectively and are sensitive to key wildlife habitats.

#### **Planning**

*Action 1 Planning: Rank: 1.8*

Work with the Delaware Invasive Species Council and conservation land managers to develop and implement adaptive management plans for control of invasive species.

**Issue 8 Invasive and other problematic species genes and diseases; Invasive non native alien species diseases; Named species: Japanese Rockpool Mosquito control, particularly larval stage. Rank: 1.5**

#### **Direct Management of Natural Resources**

*Action 1 Direct Management of Natural Resources; Invasive species control: Rank: 2.2*

Control Japanese Rockpool Mosquitos.

**Issue 9 Invasive and other problematic species genes and diseases; Problematic species diseases of unknown origin; Named species: Plant diseases (new and emerging, Hypoxalyn canker in Oak, Bacterial leaf scorch, etc.). Rank: 1.5**

#### **Direct Management of Natural Resources**

*Action 1 Direct Management of Natural Resources; Invasive species control: Rank: 1.8*

*Action 2 Direct Management of Natural Resources; Wildlife disease management: Rank: 1.8*

Identify new diseases as they enter the system and address quickly.

**Issue 10 Invasive and other problematic species genes and diseases; Invasive non native alien species diseases; Named species: Yellow Fever Mosquito control, particularly larval stage.** Rank: 1.5

**Direct Management of Natural Resources**

*Action 1 Direct Management of Natural Resources; Invasive species control:* Rank: 2.2  
Control Yellow Fever Mosquitos.

**Issue 11 Invasive and other problematic species genes and diseases; Problematic native species diseases; Unspecified species: Control of mosquitos and forest pests by aerial application of pesticides.** Rank: 2.5

**Data Collection and Analysis**

*Action 1 Data Collection and Analysis; Research survey or monitoring fish and wildlife populations:* Rank: 1.3

Work with the Mosquito Control Section and private pest control companies to assess and monitor the impacts of aerial application on SGCN insects, and on the prey base of SGCN insectivorous birds, small mammals and bats.

The Mosquito Control Section is constantly examining new control alternatives to the use of mosquitocides and analyzing the effects of their management methods. Public safety is the first priority.

*Action 2 Data Collection and Analysis; Techniques development:* Rank: 2.5

Work with the Mosquito Control Section and private pest control companies to adapt aerial application practices for conservation of SGCN, as necessary.

**Issue 12 Invasive and other problematic species genes and diseases; Invasive non native alien species diseases; Named species: Mosquito control.** Rank: 2.5

**Data Collection and Analysis**

*Action 1 Data Collection and Analysis; Techniques development:* Rank: 2.5

Continue to research and monitor alternative methods of mosquito control - naturals, sound, etc. on property to reduce mosquitos.

The Mosquito Control Section is constantly examining new control alternatives to the use of mosquitocides.

## IUCN Level 1: Natural system modifications

**Issue 1 Natural system modifications; Dams and water management use: Negative impacts to habitats and wildlife from ditching and draining for agriculture and forestry operations.** Rank: 1.2

**Coordination and Administration**

*Action 1 Coordination and Administration; Incentives:* Rank: 1.2

Work with the Division of Watershed Stewardship to provide incentives to tax ditch associations to implement BMPs that minimize impacts to key habitats.

<b>Issue 2</b>	<b>Natural system modifications; Other ecosystem modifications: Hard shorelines.</b>	Rank: 1.3
	<b><u>Direct Management of Natural Resources</u></b>	
	<i>Action 1</i> <i>Direct Management of Natural Resources:</i> Minimize hardened shorelines.	<i>Rank: 1.7</i>
	<b><u>Outreach</u></b>	
	<i>Action 1</i> <i>Outreach; Partner stakeholder engagement:</i> Target beach communities for strategic retreat versus walls or hardening.	<i>Rank: 1.7</i>
	<i>Action 2</i> <i>Outreach; Partner stakeholder engagement:</i> Target developers to promote green solutions like Shorelines - hard/soft.	<i>Rank: 1.7</i>
<b>Issue 3</b>	<b>Natural system modifications; Dams and water management use; Dams (size unknown): Natural system modifications - dams (performance measures, dam removal).</b>	Rank: 1.5
	<b><u>Data Collection and Analysis</u></b>	
	<i>Action 1</i> <i>Data Collection and Analysis; Techniques development; Habitat restoration methods:</i> Review dam removal plans.	<i>Rank: 2.2</i>
<b>Issue 4</b>	<b>Natural system modifications; Other ecosystem modifications: Long-term effects of use of dredge material (e.g. DE River Project).</b>	Rank: 1.8
	<b><u>Data Collection and Analysis</u></b>	
	<i>Action 1</i> <i>Data Collection and Analysis; Research survey or monitoring habitat:</i> Research and monitor long-term effects of dredge spoil use on marshes.	<i>Rank: 1.7</i>
<b>Issue 5</b>	<b>Natural system modifications; Dams and water management use: Tax Ditching (S. DE) - Old infrastructure.</b>	Rank: 1.8
	<b><u>Coordination and administration</u></b>	
	<i>Action 1</i> <i>Coordination and administration; Coordination and Administration:</i> Prioritization. Balance the need by farmers with environmental consequences.	<i>Rank: 2.0</i>
	<i>Action 2</i> <i>Coordination and administration:</i> Remove the exemption of tax ditches from CWA because they are either navigable waters or are hydrologically connected to navigable waters.	<i>Rank: 2.3</i>
	<b><u>Outreach</u></b>	
	<i>Action 1</i> <i>Outreach; Partner stakeholder engagement:</i> Work with Tax Ditching Association.	<i>Rank: 2.3</i>

<b>Issue 6</b>	<b>Natural system modifications; Dams and water management use: Surface water diversions causing wetland habitat degradation.</b>	<b>Rank: 2.0</b>
	<b><u>Land and Water Rights Acquisition and Protection</u></b>	
	<i>Action 1 Land and Water Rights Acquisition and Protection:</i>	<i>Rank: 2.0</i>
	<b><u>Law Enforcement</u></b>	
	<i>Action 1 Law Enforcement:</i>	<i>Rank: 2.0</i>
<b>Issue 7</b>	<b>Natural system modifications; Dams and water management use: Tax Ditches - Dredging.</b>	<b>Rank: 2.0</b>
	<b><u>Planning</u></b>	
	<i>Action 1 Planning:</i>	<i>Rank: 2.0</i>
<b>Issue 8</b>	<b>Natural system modifications; Dams and water management use: Tax Ditches - Management of navigable waters.</b>	<b>Rank: 2.0</b>
	<b><u>Law Enforcement</u></b>	
	<i>Action 1 Law Enforcement; Law Enforcement; Law Enforcement:</i>	<i>Rank: 2.0</i>
	Manage and regulate under the federal Clean Water Act tax ditches that are either a navigable water of the U.S. or are hydrologically connected to a navigable water of the U.S.	
<b>Issue 9</b>	<b>Natural system modifications; Dams and water management use: Tax Ditches - Mowing.</b>	<b>Rank: 2.0</b>
	<b><u>Education</u></b>	
	<i>Action 1 Education:</i>	<i>Rank: 2.0</i>
<b>Issue 10</b>	<b>Natural system modifications; Dams and water management use; Extraction of ground water (unknown use): Ground water extractions (irrigation, hydrology, etc.) and development drainage.</b>	<b>Rank: 2.2</b>
	<b><u>Planning</u></b>	
	<i>Action 1 Planning:</i>	<i>Rank: 2.5</i>

## IUCN Level 1: Pollution

<b>Issue 1</b>	<b>Pollution; Agricultural and forestry effluents; Herbicides and pesticides: Chemical use, namely public use unregulated: pest control, herbicides, pesticides (particularly Chiton inhibitors), etc.</b>	<b>Rank: 1.3</b>
	<b><u>Education</u></b>	
	<i>Action 1 Education:</i>	<i>Rank: 2.0</i>
	Educate producers, distributors, and the public to the negative impacts to SGCN and habitats from the use and abuse of chemicals.	

**Issue 2**     **Pollution; Agricultural and forestry effluents; Nutrient loads: Agricultural and residential development - nutrient loads.**     Rank: 1.3

**Direct Management of Natural Resources**

*Action 1*     *Direct Management of Natural Resources; Water management:*     Rank: 2.0  
Reduce nutrient loads from agriculture and residential development into surface waters and groundwater to protect aquatic wildlife and habitats.

**Issue 3**     **Pollution; Agricultural and forestry effluents; Herbicides and pesticides: Chemical use, namely public use unregulated: pest control, herbicides, pesticides (particularly Chiton inhibitors), etc.**     Rank: 1.3

**Law Enforcement**

*Action 1*     *Law Enforcement:*     Rank: 2.0  
Develop, enhance, and enforce regulations about the distribution and use of chemicals.

**Issue 4**     **Pollution; Excess energy; Noise pollution: Transportation corridors - Noise pollution.**     Rank: 1.5

**Direct Management of Natural Resources**

*Action 1*     *Direct Management of Natural Resources:*     Rank: 2.0  
Reduce noise pollution through planting native trees (natural noise barrier) and using different concrete blends.

**Issue 5**     **Pollution; Industrial and military effluents; Type unknown: Accidental spills of toxins and sewage.**     Rank: 1.8

**Coordination and Administration**

*Action 1*     *Coordination and Administration; Coordination and Administration:*     Rank: 1.7  
Maintain DFW involvement in the Natural Resource Damage Assessment process.

*Action 2*     *Coordination and Administration; Coordination and Administration; Program/project administrative support:*     Rank: 1.8  
Work with the Emergency Response Branch to integrate key habitat and SGCN protection into emergency response planning.

**Education**

*Action 1*     *Education; Educator/instructor training:*     Rank: 1.8  
Provide training for DFW staff, such as incident management, hazardous materials handling and wildlife rescue, to facilitate involvement in emergency response actions.

**Outreach**

*Action 1*     *Outreach; Partner stakeholder engagement:*     Rank: 1.2  
Develop/enhance partnerships with Tri-State Birds Rescue and other wildlife rehabilitators to improve emergency response.

<b>Issue 6</b>	<b>Pollution; Air borne pollutants; Type unknown: Industrial operations - Air pollution.</b>	Rank: 1.8
	<b><u>Data Collection and Analysis</u></b>	
	<p><i>Action 1 Data Collection and Analysis; Research survey or monitoring habitat; Monitoring:</i></p> <p>Support research to assess and monitor impacts of airborne pollutants on key habitats.</p>	Rank: 1.8
	<b><u>Law Enforcement</u></b>	
	<p><i>Action 1 Law Enforcement; Law Enforcement; Law Enforcement:</i></p> <p>Enforce existing limits on releases of airborne pollutants.</p>	Rank: 1.8
<b>Issue 7</b>	<b>Pollution; Agricultural and forestry effluents; Herbicides and pesticides: Agricultural and forestry operations - Pesticides.</b>	Rank: 2.0
	<b><u>Outreach</u></b>	
	<p><i>Action 1 Outreach; Partner stakeholder engagement:</i></p> <p>Work with the Delaware Department of Agriculture and the agricultural community to promote implementation of IPM to minimize impacts of agricultural pesticides on SGCN. Work also with landowner incentive programs to develop incentives for IPM implementation on farmland.</p>	Rank: 1.8
	<p><i>Action 2 Outreach; Partner stakeholder engagement:</i></p> <p>Work with the Delaware Department of Agriculture and the agricultural community to promote implementation of IPM to minimize impacts of agricultural pesticides on SGCN. Work also with landowner incentives programs to develop incentives for IPM implementation on farmland.</p>	Rank: 1.8
<b>Issue 8</b>	<b>Pollution; Air borne pollutants; Type unknown: Industrial operations - Air pollution.</b>	Rank: 2.0
	<b><u>Data Collection and Analysis</u></b>	
	<p><i>Action 1 Data Collection and Analysis; Research survey or monitoring habitat; Monitoring:</i></p> <p>Support research to assess and monitor impacts of airborne pollutants on key habitats.</p>	Rank: 1.8
	<b><u>Law Enforcement</u></b>	
	<p><i>Action 1 Law Enforcement; Law Enforcement; Law Enforcement:</i></p> <p>Enforce existing limits on releases of airborne pollutants.</p>	Rank: 1.7



## IUCN Level 1: Recreation needs

**Issue 1**    **Recreation needs; Public access needs; Need for more public access to areas or facilities for outdoor recreation:**    Rank: 2.0

### Outreach

*Action 1    Outreach; Partner stakeholder engagement:*    Rank: 1.8

Provide more public access on public and private lands.

## IUCN Level 1: Residential and commercial development

**Issue 1**    **Residential and commercial development; Housing and urban areas: Residential and commercial practices - Piers and docks.**    Rank:

### Outreach

*Action 1    Outreach:*    Rank: 1.8

Work with county building officials to encourage developers to construct community piers and docks in subdivisions, in place of individual structures.

*Action 2    Outreach:*    Rank: 1.8

Work with developers to create design standards for piers and docks that minimize habitat loss or fragmentation.

**Issue 2**    **Residential and commercial development: Agriculture causing early successional habitat degradation.**    Rank: 1.2

### Technical Assistance

*Action 1    Technical Assistance; Tech assistance; With private landowners:*    Rank: 2.0

Implement cost-share programs, tax reform, market mechanisms and other incentives to encourage SGCN and key habitat management and restoration on private lands.

**Issue 3**    **Residential and commercial development: Development causing habitat conversion, habitat loss, fragmentation and disturbance.**    Rank: 1.2

### Coordination and Administration

*Action 1    Coordination and Administration; Coordination and Administration; Agency administrative support:*    Rank: 1.8

Support rigorous implementation of the State Strategies for Policies and Spending to restrict major development to Levels 1-3, as necessary.

### Land and Water Rights Acquisition and Protection

*Action 1    Land and Water Rights Acquisition and Protection; Land acquisition:*    Rank: 2.0

Coordinate with partners to acquire title to, or easements on, sites that are critical to the conservation of key habitats and SGCN for management by public agencies or NGOs.

## **Outreach**

- Action 1 Outreach; Partner stakeholder engagement:* *Rank: 2.3*
- Work with conservation partners, state and county planning officials, and developers to create certification for environmentally-friendly developments, including an associated media campaign with awards.

## **Planning**

- Action 1 Planning; Organizational strategic and CMS planning; Organizational strategic and operational planning:* *Rank: 1.3*
- Evaluate means of protecting forested key habitats on private property, including education and outreach, voluntary guideline, incentives and regulations, as necessary.
- Action 2 Planning; Organizational strategic and CMS planning; Organizational strategic and operational planning:* *Rank: 1.5*
- Evaluate means of protecting isolated freshwater wetland key habitats on private property, including education and outreach, voluntary guideline, incentives and regulations, as necessary.
- Action 3 Planning; Land use planning:* *Rank: 1.7*
- Develop state policies to require incorporation of Key Wildlife Habitats into plans and planning.
- Action 4 Planning; Land use planning:* *Rank: 1.7*
- Encourage all counties to adopt environmental design standards for development projects in order to protect key wildlife habitats and SGCN.
- Action 5 Planning; Land use planning:* *Rank: 1.7*
- Encourage Kent and Sussex counties to adopt overlay zoning ordinances for the DEN and/or green infrastructure.
- Action 6 Planning; Species and habitat management planning:* *Rank: 2.0*
- Implement State and County Strategies for Policies and Spending by restricting development to Levels 1-3, as necessary.
- Action 7 Planning; Land use planning:* *Rank: 2.2*
- Work with developers to design BMPs that minimize impacts to key habitats and SGCN by preserving and restoring buffers and by reducing edge effects where appropriate and necessary.

## **Technical Assistance**

- Action 1 Technical Assistance; Environmental review; Review of proposed projects:* *Rank: 1.7*
- Improve federal/state/local coordination of environmental reviews to ensure that potential impacts to key habitats and SGCN are minimized for all major projects.

**Issue 4     Residential and commercial development: Habitat loss, fragmentation and disturbance caused by new development.** Rank: 1.2

**Outreach**

*Action 1     Outreach; Partner stakeholder engagement:* Rank: 2.2

Create certification for environmentally-friendly developments through agency and NGO-established criteria and develop an associated media campaign. Create set of well-publicized awards for environmentally-friendly developments.

**Issue 5     Residential and commercial development; Housing and urban areas: Impervious surfaces - storm sedimentation and water quantity issues (flash flooding).** Rank: 1.3

**Outreach**

*Action 1     Outreach; Partner stakeholder engagement:* Rank: 2.2

Use existing data which identifies neighborhoods with impervious surface problems and outreach to them about green solutions - Encourage pervious surfaces.

**Issue 6     Residential and commercial development: Development causing habitat conversion, habitat loss, fragmentation and disturbance.** Rank: 1.7

**Land and Water Rights Acquisition and Protection**

*Action 1     Land and Water Rights Acquisition and Protection; Land acquisition:* Rank: 1.7

Increase public acquisition of key habitats targeted by potential development.

**Issue 7     Residential and commercial development; Commercial and industrial areas: Lack of information - Emerging industry (lack of information on impacts and lack of regulations).** Rank: 1.8

**Data Collection and Analysis**

*Action 1     Data Collection and Analysis:* Rank: 1.8

**Issue 8     Residential and commercial development:** Rank: 2.0

**Direct Management of Natural Resources**

*Action 1     Direct Management of Natural Resources:* Rank: 1.8

Work with appropriate agencies to restore coastal habitats.

**Issue 9     Residential and commercial development; Housing and urban areas: Home Owner Associations; City/County Org. require certain lawn maintenance that are not healthy for wildlife or habitats.** Rank: 2.0

**Education**

*Action 1     Education; Student training:* Rank: 2.3

Educate Home Owner's Associations, county and town policy makers to promote green practices in lawn maintenance.

**Issue 10 Residential and commercial development: Increased energy demand of new development.** Rank: 2.0

**Outreach**

*Action 1 Outreach; Partner stakeholder engagement:* Rank: 2.0  
Educate and incentivize developers/contractors in order to increase property values.

**Planning**

*Action 1 Planning:* Rank: 2.0  
Recommend alternative energy at time of development (e.g., solar).

**Issue 11 Residential and commercial development; Housing and urban areas: Placement and management of storm water retention ponds/catchment areas, as they can increase mortality of wildlife, becoming population sinks/traps.** Rank: 2.0

**Data Collection and Analysis**

*Action 1 Data Collection and Analysis; Research survey or monitoring fish and wildlife populations:* Rank: 1.8  
Research and monitor effects of stormwater retention ponds on native species and research/develop alternative insect control other than introduction of non-native fish.

*Action 2 Data Collection and Analysis; Research survey or monitoring habitat:* Rank: 2.3  
Research and monitor effects of stormwater retention ponds/catchment areas/road run off and salt impacts.

**Direct Management of Natural Resources**

*Action 1 Direct Management of Natural Resources:* Rank: 2.3  
Collaborate/coordinate with appropriate body to develop guidelines/regulations to improve with regards to wildlife and appropriate use of fish for insect control.

**Outreach**

*Action 1 Outreach; Partner stakeholder engagement:* Rank: 2.0  
Educate public/landowners/developers on effects of stormwater retention pond on species/habitat/hydrology and promote natural wetland solutions.

**Issue 12 Residential and commercial development: Development causing habitat conversion, habitat loss, fragmentation and disturbance.** Rank: 2.2

**Planning**

*Action 1 Planning:* Rank: 2.0  
Smart development utilizing existing infrastructure.

<b>Issue 13</b>	<b>Residential and commercial development: Ground water extractions (irrigation, hydrology, etc.) and development drainage.</b>	Rank: 2.2
	<u><b>Planning</b></u>	
	<i>Action 1 Planning:</i> Plan for climate change scenarios.	Rank: 2.5
<b>Issue 14</b>	<b>Residential and commercial development: Cemetery planning doesn't incorporate planning to use land as habitat.</b>	Rank: 2.5
	<u><b>Outreach</b></u>	
	<i>Action 1 Outreach:</i> Work with cemetery and other open space land owners/managers to consider SGCN and proper habitats when planning landscaping and mowing schedules.	Rank: 2.5
<b>Issue 15</b>	<b>Residential and commercial development: Environmental justice considerations when planning developments and industrial infrastructure.</b>	Rank: 2.5
	<u><b>Planning</b></u>	
	<i>Action 1 Planning; Land use planning:</i>	Rank: 2.5
<b>Issue 16</b>	<b>Residential and commercial development: Natural beach dynamics causing loss of spawning habitat.</b>	Rank: 2.7
	<u><b>Data Collection and Analysis</b></u>	
	<i>Action 1 Data Collection and Analysis:</i> Research the potential benefit of jetties for protecting spawning beaches from wave action.	Rank: 1.7
<b>Issue 17</b>	<b>Residential and commercial development; Housing and urban areas: Temporary ponding in residential yards resulting in installation of drainage systems (ex: New Castle County) that drain this water to the nearest stream which increases peak discharge and do</b>	Rank: 2.7
	<u><b>Coordination and Administration</b></u>	
	<i>Action 1 Coordination and Administration; Incentives:</i> Create incentives for public implementation of BMP type solutions.	Rank: 2.3
	<u><b>Outreach</b></u>	
	<i>Action 1 Outreach; Partner stakeholder engagement:</i> Promote rain gardens and educate homeowners about negative impacts of installing drainage systems in this situation. Breaks for rain barrels and other good practices (e.g. VT).	Rank: 1.5
<b>Issue 18</b>	<b>Residential and commercial development; Housing and urban areas: Cultivated lawns should be considered as semi impervious surfaces.</b>	Rank: 3.0
	<u><b>Coordination and Administration</b></u>	
	<i>Action 1 Coordination and Administration; Coordination and Administration:</i> Tax/fee for cultivated lawns, impervious surface.	Rank: 3.0

## IUCN Level 1: Resource management needs

**Issue 1**     **Resource management needs; Management decision needs: DE is the only state in the Mid-Atlantic Region without a special program for non-tidal wetlands.**     Rank: 1.0

*Action 1*     :     Rank: 1.0

Develop a statewide conservation program for nontidal wetlands.

### **Planning**

*Action 1*     *Planning:*     Rank: 1.0

Contribute to research projects investigating how and where nontidal wetlands are vulnerable to climate change.

**Issue 2**     **Resource management needs: Residential development causing loss of key habitats and SGCN.**     Rank: 1.0

### **Land and Water Rights Acquisition and Protection**

*Action 1*     *Land and Water Rights Acquisition and Protection:*     Rank: 1.0

Support the protection of SGCN and habitats from residential development.

### **Planning**

*Action 1*     *Planning; State Wildlife Action planning:*     Rank: 1.4

Implement management for SGCN and key habitats on state lands (and Federal, NGO and private lands if appropriate) in order to protect extant occurrences and restore historic occurrences, and to establish new occurrences where feasible.

**Issue 3**     **Resource management needs; Resource information collection needs: Baseline information needed.**     Rank: 1.2

### **Data Collection and Analysis**

*Action 1*     *Data Collection and Analysis; Research survey or monitoring fish and wildlife populations; Baseline inventory:*     Rank: 1.5

Conduct research to better characterize the biology of SGCN and the ecology of key habitats as necessary to support adaptive management.

*Action 2*     *Data Collection and Analysis; Research survey or monitoring habitat; Baseline inventory:*     Rank: 1.5

Conduct surveys to more fully document the current distribution and condition of key habitats.

*Action 3*     *Data Collection and Analysis; Research survey or monitoring fish and wildlife populations; Baseline inventory:*     Rank: 1.5

Conduct surveys to more fully document the current distribution and status of SGCN, especially in Key Habitats.

*Action 4 Data Collection and Analysis; Database development and management: Rank: 1.5*

Establish Natural Heritage ranks for all SGCN and key habitats not currently tracked by the Natural Heritage Program, and use the results to update SGCN and key habitat lists as necessary. Develop protocols for timely review and revision of all Natural Heritage ranks to maintain currency of SGCN and key habitat lists.

**Issue 4 Resource management needs; Resource information collection needs: Need for more consistent species monitoring, especially for migratory species. Rank: 1.2**

**Data Collection and Analysis**

*Action 1 Data Collection and Analysis: Rank: 1.8*

Expand consistent species monitoring, particularly to under surveyed migratory species.

**Issue 5 Resource management needs; Resource information collection needs: Need for more information on current distribution of invasive species. Rank: 1.2**

**Direct Management of Natural Resources**

*Action 1 Direct Management of Natural Resources; Invasive species control: Rank: 1.5*

Research and map current distribution of invasives, identify locations of greatest threat and develop a response plan.

**Issue 6 Resource management needs: Resource protection - Funding needed for open space acquisition to protect SGCN and key habitats. Rank: 1.2**

**Land and Water Rights Acquisition and Protection**

*Action 1 Land and Water Rights Acquisition and Protection; Land acquisition: Rank: 1.0*

Provide sufficient funding for the Open Space Program.

**Issue 7 Resource management needs; Management decision needs: Lack of State ranks for plants. Rank: 1.3**

**Data Collection and Analysis**

*Action 1 Data Collection and Analysis; Database development and management: Rank: 1.5*

Rank plants (e.g. Nature serve - G/S ranks and Bill's DE flora book includes ranks).

**Issue 8 Resource management needs; Management decision needs; Lack of fish, wildlife and/or habitat planning: Monitoring and adaptive management - Lack of quantitative measures of success for assessing DEWAP implementation. Rank: 1.3**

**Data Collection and Analysis**

*Action 1 Data Collection and Analysis; Database development and management; Database development: Rank: 1.5*

Develop a quantitative or semi-quantitative scoring system for representing key habitat condition.

*Action 2 Data Collection and Analysis: Rank: 1.5*

Develop performance indicators that measure the success of conservation actions for abatement of "direct threat" conservation issues by monitoring changes in the extent and severity of impacts from these issues.

*Action 3 Data Collection and Analysis: Rank: 1.5*

Develop performance indicators that measure the success of conservation actions that resolve "indirect threat" conservation issues by monitoring appropriate metrics.

*Action 4 Data Collection and Analysis: Rank: 1.7*

Develop performance indicators that measure the success of SGCN and key habitat management by monitoring trends in distribution and status of SGCN, and distribution and condition of key habitats.

### **Outreach**

*Action 1 Outreach; Partner stakeholder engagement: Rank: 1.3*

Combine performance indicators into an annual "scorecard" of DEWAP implementation. Provide this scorecard to conservation partners, stakeholders, elected officials, media and the general public in order to enhance accountability.

### **Planning**

*Action 1 Planning: Rank: 2.0*

Create an adaptive management framework that utilizes monitoring to adapt planning and implementation to conservation actions to account for unsatisfactory results, changing conditions and new information.

**Issue 9 Resource management needs; Management decision needs: Natural resource management planning - Conservation planning process. Rank: 1.3**

### **Data Collection and Analysis**

*Action 1 Data Collection and Analysis: Rank: 1.8*

Conduct research on the extent and severity of impacts from "direct threat" conservation issues to key habitats and SGCN as needed to support adaptive management.

*Action 2 Data Collection and Analysis; Database development and management: Rank: 1.8*

Develop quantitative or semi-quantitative risk assessment protocols for all "direct threat" conservation issues where they do not already exist, and utilize risk assessment results to prioritize conservation issues.

*Action 3 Data Collection and Analysis; Database development and management; Information systems operations and maintenance: Rank: 1.8*

Develop standardized classifications systems (species, habitats, issues, actions) and data formats, or at least compatible systems and formats, that will facilitate cooperative planning among DFW and conservation partners.

*Action 4 Data Collection and Analysis; Database development and management: Rank: 1.8*

Refine the DEWAP wildlife habitat maps to better inform resource management planning, and develop a protocol for periodic updates. This should include incorporating new information such as the recently completed Gap Analysis Project mapping, and updating existing resource maps such as wetlands, forests and land use/land cover.

### **Planning**

*Action 1 Planning; Organizational strategic and CMS planning; Organizational strategic and operational planning: Rank: 1.8*

Develop a strategic planning process to "step down" DEWAP into prioritized management prescriptions for SGCN, key habitats, and resolution of "direct threat" conservation issues on public and private lands. Include all relevant conservation actions from existing national, regional, state and site plans. Incorporate information and actions from these prescriptions into resource management plans as appropriate.

**Issue 10 Resource management needs; Resource information collection needs: Rank: 1.5**

### **Data Collection and Analysis**

*Action 1 Data Collection and Analysis; Database development and management: Rank: 1.5*

Continue to refine and update vegetation community classification, descriptions, inventory, and mapping.

*Action 2 Data Collection and Analysis: Rank: 1.5*

Improve mapping consistency and accuracy for habitats by integrating Habitats of Conservation Concern data layer with Delaware Vegetation Community layer.

**Issue 11 Resource management needs; Resource information collection needs: Impact on nontarget species from private insect (mosquito) control companies. Rank: 1.5**

### **Data Collection and Analysis**

*Action 1 Data Collection and Analysis; Research survey or monitoring fish and wildlife populations: Rank: 1.5*

Research impacts of pest control on nontarget species.

**Issue 12**    **Resource management needs; Management decision needs; Need to provide technical assistance: Information management for SGCN, key habitat, conservation issue and conservation action data to support adaptive management.**    **Rank: 1.5**

**Coordination and Administration**

*Action 1    Coordination and Administration:*    *Rank: 1.0*

Provide non-state agencies, organizations and individuals committed to supporting the DEWAP with greater access to SGCN and key habitat information.

*Action 2    Coordination and Administration; Incentives:*    *Rank: 1.7*

Develop incentives for non-state agencies, organizations and individuals to utilize SGCN and key habitat information in their operations. Market the benefits of using this information such as saving time or funds, or minimizing the potential for legal conflict.

**Data Collection and Analysis**

*Action 1    Data Collection and Analysis; Database development and management; Information systems operations and maintenance:*    *Rank: 2.0*

Create, implement and/or update spatial computer applications for data management and decision support - e.g. Biotics, Vista, Delaware Invasive Species Tracking System - throughout DFW and other agencies/organizations as appropriate.

**Planning**

*Action 1    Planning:*    *Rank: 2.0*

Develop state policies to encourage the integration of SGCN and key habitat data into all State agencies' decision-making, including long-range planning, development of acquisition strategies, targeting of cost-share and incentive programs, and making adaptive management decisions on state-owned land.

**Issue 13**    **Resource management needs; Management decision needs: Lack of strategic planning and habitat management standards, particularly for state Wildlife Areas.**    **Rank: 1.5**

**Planning**

*Action 1    Planning:*    *Rank: 1.5*

Develop strategic plans for Wildlife Areas, including habitat management standards, goals, and objectives.

**Issue 14**    **Resource management needs; Resource information collection needs: Need for monitoring of SGCN, key habitats, impacts from conservation issues and outcomes of conservation actions.**    **Rank: 1.5**

**Data Collection and Analysis**

*Action 1    Data Collection and Analysis; Techniques development; Fish and wildlife research survey and management techniques:*    *Rank: 2.0*

Develop or adapt standardized monitoring protocols that incorporate existing state, regional and national monitoring schemes where they exist, and include these protocols in all conservation programs and projects.

	<p><i>Action 2    Data Collection and Analysis:</i> <span style="float: right;"><i>Rank: 2.0</i></span></p> <p>Monitor abatement of impacts to SGCN and key habitats from "direct threat" conservation issues.</p>
	<p><i>Action 3    Data Collection and Analysis:</i> <span style="float: right;"><i>Rank: 2.0</i></span></p> <p>Monitor outcomes of conservation actions for SGCN and key habitats.</p>
	<p><i>Action 4    Data Collection and Analysis:</i> <span style="float: right;"><i>Rank: 2.0</i></span></p> <p>Monitor SGCN and key habitats to determine trends in the distribution and status of SGCN and the distribution and condition of key habitats.</p>
<b>Issue 15</b>	<p><b>Resource management needs: Nuisance wildlife management - Dedicated response staff.</b> <span style="float: right;">Rank: 1.5</span></p> <p><b><u>Coordination and Administration</u></b></p> <p><i>Action 1    Coordination and Administration; Coordination and Administration; Program/project administrative support:</i> <span style="float: right;"><i>Rank: 2.4</i></span></p> <p>Provide additional resources to respond to nuisance wildlife complaints.</p>
<b>Issue 16</b>	<p><b>Resource management needs: Resource protection - Enforcement capacity insufficient.</b> <span style="float: right;">Rank: 1.5</span></p> <p><b><u>Education</u></b></p> <p><i>Action 1    Education; Educator/instructor training:</i> <span style="float: right;"><i>Rank: 1.7</i></span></p> <p>Provide training on existing and future laws and regulations for protection of SGCN and key habitats, and additional staff resources, as needed, to handle enforcement of those regulations.</p>
<b>Issue 17</b>	<p><b>Resource management needs; Management decision needs: The privatization of insect control, specifically nuisance mosquito species.</b> <span style="float: right;">Rank: 1.5</span></p> <p><b><u>Coordination and Administration</u></b></p> <p><i>Action 1    Coordination and Administration; Coordination and Administration:</i> <span style="float: right;"><i>Rank: 1.8</i></span></p> <p>Regulate privatization of mosquito control applicators (50+ companies).</p>
<b>Issue 18</b>	<p><b>Resource management needs; Management decision needs; Need to provide technical assistance:</b> <span style="float: right;">Rank: 1.7</span></p> <p><i>Action 1    :</i> <span style="float: right;"><i>Rank: 1.7</i></span></p> <p>Partner more with NGOs and nature enthusiasts to address data collection/survey needs and recruit Citizen Scientists, volunteer monitors, wardens, etc.</p> <p><b><u>Data Collection and Analysis</u></b></p> <p><i>Action 1    Data Collection and Analysis:</i> <span style="float: right;"><i>Rank: 1.7</i></span></p> <p>Develop a list of needs that volunteers could help address.</p>

**Issue 19**    **Resource management needs; Resource information collection needs: Lack of information - Nontarget species research/information.**    Rank: 1.8

**Data Collection and Analysis**

*Action 1    Data Collection and Analysis; Research survey or monitoring fish and wildlife populations:*    Rank: 1.8

Research effects of herbicides, pesticides and unintentional chemical pollution sources on non-target species.

**Issue 20**    **Resource management needs; Management decision needs: Facility and Program Operations.**    Rank: 2.0

**Outreach**

*Action 1    Outreach; Partner stakeholder engagement:*    Rank: 1.8

Encourage Federal and NGO conservation land managers to develop policies for minimizing impacts from facility and program operations to key habitats and SGCN.

**Technical Assistance**

*Action 1    Technical Assistance; Environmental review; Review of proposed policies and plans:*    Rank: 1.3

Review facility and program operations on state conservation lands - Wildlife Areas, Parks and Forests - and develop state policies for minimizing impacts to key habitats and SGCN. Establish MOUs with DPR and the State Forest Service about consultation with DFW on issues impacting key habitats and SGCN in State Parks and State Forests.

**Issue 21**    **Resource management needs; Management decision needs:**    Rank: 2.2

**Data Collection and Analysis**

*Action 1    Data Collection and Analysis; Database development and management:*    Rank: 1.7

Analyze species and habitat management on state conservation lands - Wildlife Areas, parks, and Forests - and adapt management as necessary to increase key habitat patch size and reduce edge effects on SGCN.

**Issue 22**    **Resource management needs; Management decision needs: Habitat/Wildlife management.**    Rank: 2.2

**Outreach**

*Action 1    Outreach; Partner stakeholder engagement:*    Rank: 1.2

Encourage Federal and NGO conservation land managers to adapt species and habitat management to increase key habitat patch size and reduce edge effects on SGCN.

<b>Issue 23</b>	<b>Resource management needs; Management decision needs: Resource management - Habitat/Wildlife Management.</b>	<b>Rank: 2.2</b>
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**Outreach**

<i>Action 1</i>	<i>Outreach; Partner stakeholder engagement:</i>	<i>Rank: 1.2</i>
	Encourage Federal and NGO conservation land managers to adapt species and habitat management to increase key habitat patch size and reduce edge effects on SGCN.	

## IUCN Level 1: Transportation and service corridors

<b>Issue 1</b>	<b>Transportation and service corridors; Shipping lanes: Channel dredging to allow for boat/ship traffic.</b>	<b>Rank: 1.0</b>
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**Data Collection and Analysis**

<i>Action 1</i>	<i>Data Collection and Analysis:</i>	<i>Rank: 2.0</i>
	Continue monitoring, researching, and assessing dredging impacts to wildlife and habitats.	

**Direct Management of Natural Resources**

<i>Action 1</i>	<i>Direct Management of Natural Resources:</i>	<i>Rank: 1.0</i>
	Address beneficial use of dredge material.	
<i>Action 2</i>	<i>Direct Management of Natural Resources; Water management:</i>	<i>Rank: 1.0</i>
	Develop and implement time of year restrictions for dredging to minimize negative impacts to wildlife and habitats.	

<b>Issue 2</b>	<b>Transportation and service corridors; Utility and service lines: Habitat loss and fragmentation - Utility Corridors.</b>	<b>Rank: 1.2</b>
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**Coordination and Administration**

<i>Action 1</i>	<i>Coordination and Administration; Coordination and Administration; Agency administrative support:</i>	<i>Rank: 1.5</i>
	Work with utilities to develop BMPs to integrate key habitat and SGCN conservation into corridor maintenance, including controlling invasive species, preserving and restoring buffers and reducing edge effects.	

**Planning**

<i>Action 1</i>	<i>Planning; Land use planning:</i>	<i>Rank: 1.5</i>
	Work with utilities and state and local planning officials to integrate key habitat and SGCN conservation into long-range planning for electric, water, sewer, natural gas and petroleum lines.	

**Issue 3     Transportation and service corridors; Roads and railroads: Habitat loss and fragmentation - Transportation Infrastructure.**     Rank: 1.2

**Coordination and Administration**

*Action 1     Coordination and Administration; Coordination and Administration; Agency administrative support:*     Rank: 1.0

Work with the Delaware Department of Transportation to develop BMPs to integrate key habitat and SGCN conservation into landscaping, mowing, invasive plant control and other road maintenance, including preserving and restoring buffers and reducing edge effects.

**Planning**

*Action 1     Planning; Land use planning:*     Rank: 1.0

Work with the Delaware Department of Transportation to integrate key habitat and SGCN conservation into long-range transportation planning.

**Issue 4     Transportation and service corridors: Expanding roadways from residential development causing wetland buffer conversion.**     Rank: 1.3

**Direct Management of Natural Resources**

*Action 1     Direct Management of Natural Resources:*     Rank: 2.0

Maintain or improve hydrologic connections (e.g. restore tidal flow in estuarine systems) when maintaining or constructing buildings, railroads, and highways adjacent to rivers, lakes or wetlands.

**Planning**

*Action 1     Planning:*     Rank: 2.0

Develop and implement regulations to limit wetland buffer conversion.

**Issue 5     Transportation and service corridors; Roads and railroads: Negative impacts of transportation construction and infrastructure that disrupts wildlife, their movements, and habitats (including road mortality).**     Rank: 1.3

**Direct Management of Natural Resources**

*Action 1     Direct Management of Natural Resources:*     Rank: 1.7

Create/maintain "citizen crossing brigades" and similar programs.

**Planning**

*Action 1     Planning; Land use planning:*     Rank: 1.8

Use conservation banking to mitigate unavoidable impacts of transportation.

**Technical Assistance**



**Issue 9      Transportation and service corridors: Mowing incompatible to wildlife/habitat and adjacent agricultural fields.** Rank: 2.0

**Outreach**

*Action 1      Outreach; Partner stakeholder engagement; Government agency:      Rank: 2.0*  
Coordinate with DEL DOT on mowing schedule and location.  
Outreach/education regarding importance of roadside vegetation  
for pollinators. Balance weed control with habitat management.

**Issue 10      Transportation and service corridors; Roads and railroads: Transportation infrastructure - Railroads.** Rank: 2.5

**Coordination and Administration**

*Action 1      Coordination and Administration; Coordination and      Rank: 2.9*  
*Administration; Agency administrative support:*  
Coordinate maintenance around lines with DE Valley, N Southern  
Ind. RR Companies.